

●● Joint Symposium by OSJ and OSK on Optical Design & Fabrication

Invited III 7월 11일(금) 10:10~10:40 펍닉스볼룸 I(A)



Optical Coatings and some Current Applications

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Most optical systems contain a series of optical surfaces that manipulate and modify and redirect the light. The intrinsic properties of these surfaces, determined by the material in which they are fabricated, are rarely ideal and often far from satisfactory. Modification of these properties that render them suitable for their application is performed by optical coatings. The primary role of an optical coating is, of course, the improvement of the surface optical properties but it is frequently required simultaneously to improve other properties, such as environmental resistance. An optical coating usually operates by a mixture of controlled interference and the natural properties of the employed materials. Since virtually all optical systems include surfaces, optical coatings permeate the entire field of optics. All modern optical systems incorporate coatings, and often the coatings are the ultimate determinants of performance. Applications range from huge astronomical telescopes to small pixels in displays. They are found in optical systems in medicine and biochemistry, in telecommunications, in the production of semiconductor devices, in ophthalmics, in anticounterfeiting inks and color variable paints, in ultrafast pulse compressors, in laser resonators and amplifiers, and these are just a few of the areas. They are often described as an enabling technology because their primary task is to enable a particular function. They are unobtrusive. Frequently their presence is revealed only by the color of a surface that would, uncoated, be colorless. However, to assure the correct interference properties requires a series of thin layers of material, that can reach the hundreds, accurately calculated and controlled to yield multiple beam interference effects that exhibit precisely the required properties. This talk will briefly survey the fundamental principles of optical coatings and discuss a number of diverse current applications.

• Biograph

Angus Macleod was born and educated in Scotland.

He has over 40 years of experience in optical coatings, roughly half in industry and half in academia. In 1979 he moved to Tucson in the United States, where he is President of Thin Film Center Inc and Professor Emeritus of Optical Sciences at the University of Arizona.

His best-known publication is Thin-Film Optical Filters, now in its third edition. He is currently President of the Society of Vacuum Coaters.

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